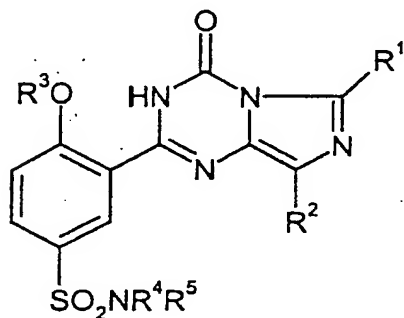


Patent claims

1. The use of cGMP-stimulating compounds for
producing a pharmaceutical for the treatment
5 and/or prophylaxis of diseases in which an
improvement in and/or a cure of a syndrome can be
achieved by improving the microcirculation of a
tissue which contains a cGMP-metabolizing
phosphodiesterase.
10
2. The use as claimed in claim 1 for producing a
pharmaceutical for the treatment and/or
prophylaxis of coronary heart disease, cardiac
insufficiency, pulmonary hypertension, bladder
15 diseases, prostate hyperplasia, nitrate-induced
tolerance or diseases of the eye, for the
treatment and/or prophylaxis of central retinal or
posterior ciliary arterial occlusion, central
retinal venous occlusion, optical neuropathy and
20 also macular degeneration and diabetes, and for
the treatment of disturbances in the peristalsis
of the stomach and esophagus, of female
infertility, premature labor, preeclampsia,
alopecia, psoriasis, the renal syndrome, cystic
25 fibrosis and/or cancer.
3. The use as claimed in claim 1 for producing
pharmaceuticals for improving perception,
concentration performance and learning performance
30 and/or memory performance, for improving
perception, concentration performance, learning
performance and/or memory performance following
cognitive disturbances, age-associated learning
and memory disturbances, age-associated memory
35 loss, vascular dementia, craniocerebral trauma,
stroke, dementia which occurs following strokes
(post-stroke dementia), post-traumatic

craniocerebral trauma, general disturbances of concentration, concentration disturbances in children suffering from learning and memory problems, vascular dementia, dementia associated with Lewy bodies, dementia associated with degeneration of the frontal lobes including Pick's syndrome, Parkinson's disease, progressive nuclear palsy, dementia associated with corticobasal degeneration, amyotrophic lateral sclerosis (ALS), Huntington's disease, multiple sclerosis, thalamic degeneration, Creutzfeld-Jacob dementia, new variant Creutzfeld-Jacob dementia, HIV dementia, schizophrenia associated with dementia or Korsakoff's psychosis.

4. The use as claimed in at least one of claims 1 to 3, characterized in that at least one imidazo[1,3,5]triazinone of the general formula (I)



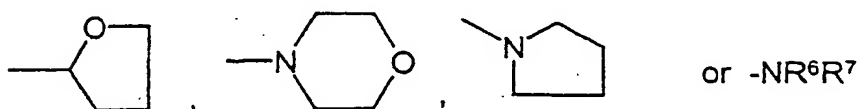
(I),

in which

- R^1 is straight-chain or branched alkyl having up to 4 carbon atoms,
- R^2 is straight-chain or branched alkyl having up to 4 carbon atoms or
- is (C_3-C_8) -cycloalkyl,

R^3 is hydrogen or straight-chain or branched alkyl having up to 4 carbon atoms,

R^4 and R^5 are identical or different and are hydrogen, (C_1-C_6) -alkoxy or hydroxyl or are (C_1-C_8) -alkyl which is optionally substituted, up to 3 times, identically or differently, by hydroxyl, (C_1-C_6) -alkoxy or radicals of the formulae



in which

15 R^6 and R^7 are identical or different and are hydrogen or (C_1-C_6) -alkyl,

and/or, for its part, (C_1-C_8) -alkyl is optionally substituted by phenyl or phenoxy which, for their part, are optionally substituted, once to three times, identically or differently, by halogen, hydroxyl, (C_1-C_6) -alkoxy, (C_1-C_6) -alkyl or a radical of the formula $-SO_2NR^8R^9$,

25 in which

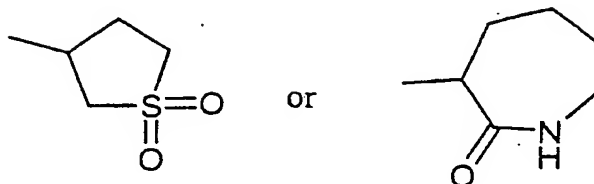
R^8 and R^9 are identical or different and are hydrogen or (C_1-C_6) -alkyl,

30 or

R^4 is hydrogen or methyl

35 and

R⁵ is radicals of the formulae

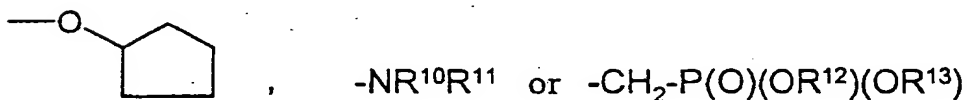


or

5

is phenyl which is optionally substituted, up to 3 times, identically or differently, by halogen, acetyl, (C₁-C₆)-alkoxy or radicals of the formulae

10



in which

15

R¹⁰ and R¹¹ are identical or different and are hydrogen or (C₁-C₄)-alkyl,

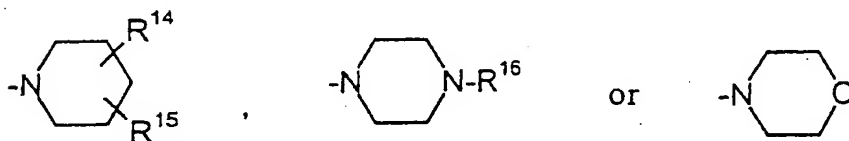
R¹² and R¹³ are identical or different and are hydrogen or (C₁-C₆)-alkyl,

20

or

R⁴ and R⁵, together with the nitrogen atom to which they are bonded, are radicals of the formulae

25



in which

30

R^{14} and R^{15} are identical or different and are hydroxyl, hydrogen or (C₁-C₄)-alkyl which is optionally substituted by hydroxyl,

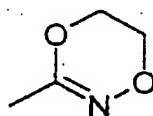
5 or

R^{14} is hydrogen

and

10

R^{15} is a radical of the formula



or

15

R^{14} and R^{15} together form a radical of the formula =N-O-CH₃,

20

R^{16} is hydrogen or (C₁-C₆)-alkyl which is optionally substituted by hydroxyl, or

is a 5- to 6-membered, aromatic heterocycle having up to 3 hetero atoms from the series, S, N and/or O,

25

and the salts, hydrates, hydrates of the salts, N-oxides and isomeric forms thereof is/are employed as (a) cGMP-stimulating compound(s).

30 5. The use as claimed in claim 4, characterized in that compounds of the general formula (I)

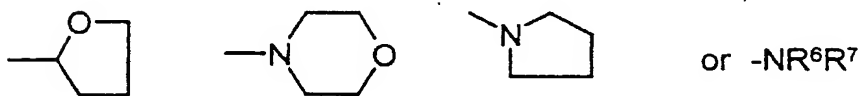
in which

35 R^1 is methyl or ethyl,

R^2 is straight-chain or branched alkyl having up to 3 carbon atoms or is (C_3-C_6) -cycloalkyl,

5 R^3 is straight-chain or branched alkyl having up to 3 carbon atoms,

10 R^4 and R^5 are identical or different and are hydrogen, (C_1-C_4) -alkoxy or hydroxyl or are (C_1-C_7) -alkyl which is optionally substituted, up to 3 times, identically or differently, by hydroxyl, (C_1-C_4) -alkoxy or radicals of the formulae



in which

R^6 and R^7 are identical or different and are hydrogen or methyl,

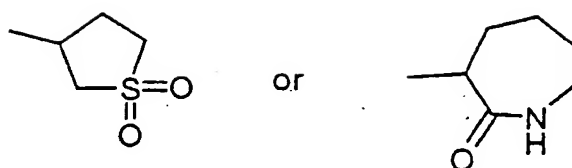
20 and/or, for its part, (C_1-C_7) -alkyl is optionally substituted by phenyl or phenoxy which, for their part, are optionally substituted, once to three times, identically or differently, by fluorine, chlorine, hydroxyl, (C_1-C_4) -alkoxy or (C_1-C_4) -alkyl or
25 by a radical of the formula $-SO_2NH_2$,
or

30 R^4 is hydrogen or methyl,

and

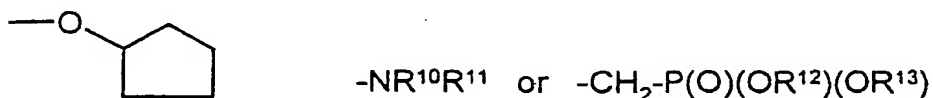
R^5 is radicals of the formulae

35



or

5 is phenyl which is optionally substituted, up to 3 times, identically or differently, by fluorine, chlorine, acetyl or (C₁-C₄)-alkoxy or by radicals of the formulae



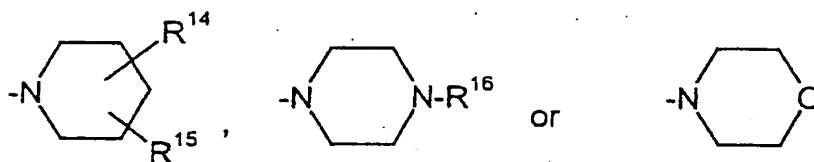
10 in which

R¹⁰ and R¹¹ are identical or different and are hydrogen or methyl,

15 R¹² and R¹³ are identical or different and are hydrogen or methyl,

or

20 R⁴ and R⁵, together with the nitrogen atom to which they are bonded, are radicals of the formulae



in which

25

R¹⁴ and R¹⁵ are identical or different and are hydroxyl, hydrogen or (C₁-C₃)-alkyl which is optionally substituted by hydroxyl,

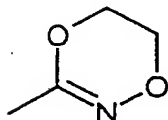
or

R¹⁴ is hydrogen

and

5

R¹⁵ is a radical of the formula



10

or

R¹⁴ and R¹⁵ together form a radical of the formula
=N-O-CH₃,

15

R¹⁶ is hydrogen or (C₁-C₅)-alkyl which is optionally substituted by hydroxyl, or is pyridyl, pyrimidyl, furyl, pyrrol or thienyl,

20

and the salts, hydrates, hydrates of the salts, N-oxides and isomeric forms thereof are employed as cGMP-stimulating compounds.

25

6. The use as claimed in claim 4, characterized in that compounds of the general formula (I)

in which

30

R¹ is methyl or ethyl,

R² is n-propyl or cyclopentyl,

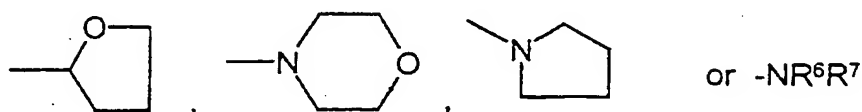
R³ is methyl, ethyl or n-propyl,

35

R⁴ and R⁵ are identical or different and are hydrogen, (C₁-C₃)-alkoxy or hydroxyl or are

(C₁-C₆)-alkyl which is optionally substituted, up to 3 times, identically or differently, by hydroxyl or (C₁-C₃)-alkoxy or by radicals of the formulae

5



in which

10

R⁶ and R⁷ are identical or different and are hydrogen or methyl,

and/or, for its part, (C₁-C₆)-alkyl is optionally substituted by phenyl or phenoxy which, for their part, are optionally substituted, once to three times, identically or differently, by fluorine, hydroxyl or methoxy or by a radical of the formula -

20

SO₂NH₂,

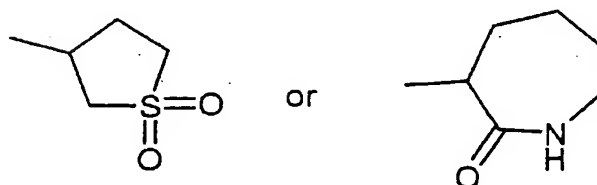
or

R⁴ is hydrogen or methyl

25

and

R⁵ is radicals of the formulae

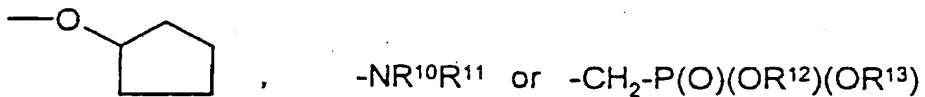


30

or

is phenyl which is optionally substituted, up to 3 times, identically or differently, by fluorine, acetyl or methoxy or by radicals of the formulae

5



in which

10

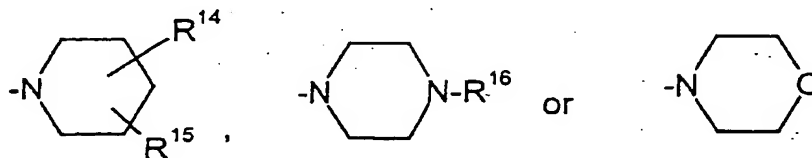
R^{10} and R^{11} are identical or different and are hydrogen or methyl,

R^{12} and R^{13} are methyl,

15

or

R^4 and R^5 , together with the nitrogen atom to which they are bonded, are radicals of the formulae



20

in which

25

R^{14} and R^{15} are identical or different and are hydroxyl or hydrogen or a radical of the formula $-(CH_2)_2-OH$,

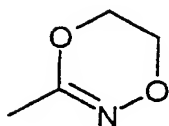
or

30

R^{14} is hydrogen

and

R¹⁵ is a radical of the formula



5 or

R¹⁴ and R¹⁵ together form a radical of the formula
=N-O-CH₃,

10 R¹⁶ is hydrogen, pyrimidyl or a radical of the
formula -(CH₂)₂-OH

and the salts, hydrates, hydrates of the salts, N-
oxides and isomeric forms thereof are employed as
15 cGMP-stimulating compounds.

7. A pharmaceutical for the treatment and/or
prophylaxis of diseases in which an improvement in
and/or a cure of a syndrome can be achieved by
20 improving the microcirculation of a tissue which
contains a cGMP-metabolizing phosphodiesterase,
which pharmaceutical comprises at least one cGMP-
stimulating compound.

25 8. A pharmaceutical for the treatment and/or
prophylaxis of coronary heart disease, cardiac
insufficiency, pulmonary hypertension, bladder
diseases, prostate hyperplasia, nitrate-induced
tolerance or diseases of the eye, for the
30 treatment and/or prophylaxis of central retinal or
posterior ciliary arterial occlusion, central
retinal venous occlusion, optical neuropathy and
of macular degeneration and diabetes, and for the
treatment of disturbances of the peristalsis of
35 the stomach and esophagus, of female infertility,

premature labor, preeclampsia, alopecia, psoriasis, the renal syndrome, cystic fibrosis and/or cancer, which pharmaceutical comprises at least one cGMP-stimulating compound.

5

9. A pharmaceutical for improving perception, concentration performance, learning performance and/or memory performance, for improving perception, concentration performance, learning performance and/or memory performance following cognitive disturbances, age-associated learning and memory disturbances, age-associated memory loss, vascular dementia, craniocerebral trauma, stroke, dementia which occurs after strokes (post-stroke dementia), post-traumatic craniocerebral trauma, general disturbances of concentration, concentration disturbances in children suffering from learning and memory problems, vascular dementia, dementia associated with Lewy bodies, dementia associated with degeneration of the frontal lobes including Pick's syndrome, Parkinson's disease, progressive nuclear palsy, dementia associated with corticobasal degeneration, amyolateral sclerosis (ALS), Huntington's disease, multiple sclerosis, thalamic degeneration, Creutzfeld-Jacob dementia, new variant Creutzfeld-Jacob dementia, HIV dementia, schizophrenia associated with dementia or Korsakoff's psychosis, which pharmaceutical comprises at least one cGMP-stimulating compound.
10. A pharmaceutical as claimed in one of claims 7 to 9 which comprises, as cGMP-stimulating compound, at least one compound as defined in claims 4 to 6.

30